**Small Business Innovation Research/Small Business Tech Transfer**

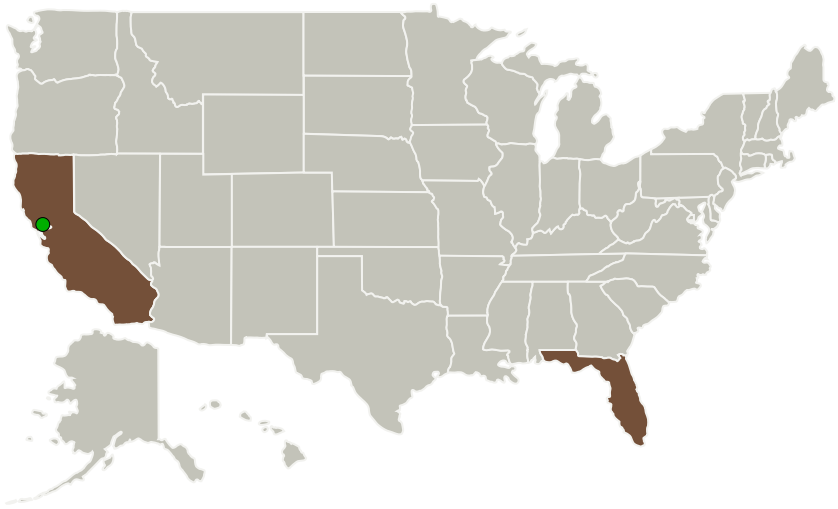
# High Channel Count, High Density Microphone Arrays for Wind Tunnel Environments, Phase I

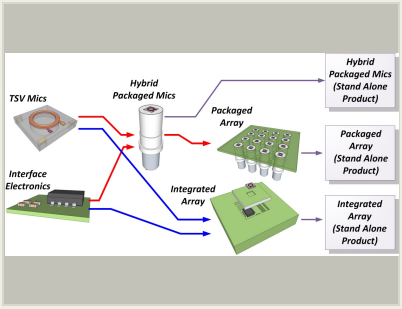
Completed Technology Project (2017 - 2017)

## Project Introduction

The Interdisciplinary Consulting Corporation (IC2) proposes the development of high channel count, high density, reduced cost per channel, directional microphone arrays for noise source measurement using microelectromechanical systems (MEMS) based piezoelectric microphones with backside contacts and advanced packaging technology. The goal of this research is to develop an advanced phased-array technology to revolutionize array measurement capabilities through increases in array density and channel count while easing installation into wind-tunnels and significantly reducing cost per channel. Specifically, this array technology will be developed to address NASA?s needs for acoustic and relevant flow field measurement methods for subsonic, transonic and supersonic vehicles targeted specifically at airframe noise sources and the noise sources due to the aerodynamic and acoustic interaction of airframe and engines, as per Subtopic A1.02 Quiet Performance - Airframe Noise Reduction of the NASA FY 2017 SBIR/STTR Solicitation. This work is aimed at meeting the aerospace industrys need for economically viable array technology that meets required metrics.

## Primary U.S. Work Locations and Key Partners






High Channel Count, High Density Microphone Arrays for Wind Tunnel Environments, Phase I Briefing Chart Image

## Table of Contents

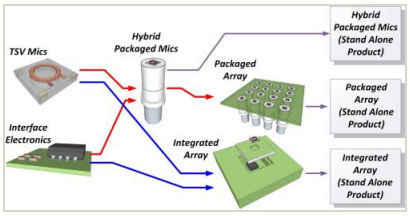
# High Channel Count, High Density Microphone Arrays for Wind Tunnel Environments, Phase I

Completed Technology Project (2017 - 2017)

| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Interdisciplinary Consulting Corporation | Lead Organization | Industry | Gainesville, Florida |
| Ames Research Center(ARC) | Supporting Organization | NASA Center | Moffett Field, California |

| Primary U.S. Work Locations | |
|---|---|
| California | Florida |

## Images




**Briefing Chart Image**
High Channel Count, High Density Microphone Arrays for Wind Tunnel Environments, Phase I Briefing Chart Image *(https://techport.nasa.gov/image/126072)*

## Organizational Responsibility

**Responsible Mission Directorate:**
Space Technology Mission Directorate (STMD)

**Lead Organization:**
Interdisciplinary Consulting Corporation

**Responsible Program:**
Small Business Innovation Research/Small Business Tech Transfer

## Project Management

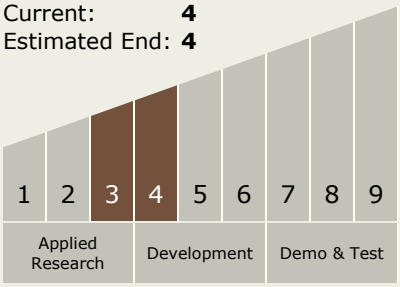
**Program Director:**
Jason L Kessler

**Program Manager:**
Carlos Torrez

**Principal Investigator:**
Stephen B Horowitz

## Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



# High Channel Count, High Density Microphone Arrays for Wind Tunnel Environments, Phase I

Completed Technology Project (2017 - 2017)

## Technology Areas

**Primary:**

- TX15 Flight Vehicle Systems
  - TX15.1 Aerosciences
    - TX15.1.4 Aeroacoustics